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GEMS AND SUPERSTITION.

The Magic of Jewels and Charms. By Dr. G. F. Kunz. Pp. xv+422. (Philadelphia and London: J. B. Lippincott Co., 1915.) Price 21*s.* net.

DR. KUNZ, who is well known as a mineralogist of repute and as one of the leading authorities of the day on precious stones and jewelry, has evidently spared no time and trouble to make himself acquainted with the many strange fancies and superstitions that have at various times and in various countries been attached to gems and other treasured objects. As the result of his industry he had compiled a large mass of notes, out of which he gave us barely two years ago a book entitled "The Curious Lore of Precious Stones," and now, since his stock of material was by no means exhausted by the publication of that work, he sets before us a companion volume, or, as he terms it in his preface, the twin sister, the scope of which is much more diffuse; precious stones enter again, especially as regards their curative and talismanic uses, but besides them we find also substances which do not ordinarily figure in jewelry, such as meteorites, fossils, bezoars, and animal concretions. Founded as it is upon notes, and copiously sprinkled with lengthy extracts from the original literature, the book proceeds with something of the jerky gait of the grasshopper, and we find nothing in the way of a general discussion or the development of some comprehensive theory. Nevertheless, the author has done good service by providing a good and convenient *resume* of the subject, and not the least valuable and interesting paragraphs are those in which he gives the results of his own observations.

In the first chapter, on magic stones and electric gems, the author touches upon some curious stones. He considers that galactite, which according to Pliny came from the Nile and had the colour and odour of milk, was not, strictly speaking, a stone at all, but nitrate of lime. Rain-makers, who professed to produce rain by their magic art, seem to have made use of any unusual stone that happened to come to hand, and, although rock-crystal has been so employed, transparent stones were by no means the rule. In medieval times countless attempts were made by the alchemists to discover the so-called philosopher's stone, which should transmute base metal into gold, and the ignorant people of those days were often successfully imposed upon. A description is given of the most striking examples of the supposed transmutation that have come down to us, viz., the large medallion, bearing in relief the heads of the Emperor Leopold and his ancestors of the house of Hapsburg, which was treated by Seiler in 1677, and the exceedingly rare medal struck in 1647 by command of the Emperor Ferdinand III. from gold supposed to have been produced in his presence by Hofmann; in neither case, of course, is the metal pure gold, but it remains a mystery what was the actual process, the historical interest of the objects precluding a chemical examination. The remarkable electric properties of tourmaline, in which respect it transcends other minerals, first attracted notice as early as 1717, and were definitely established by 1756. Dr. Kunz describes in appreciative terms the beautiful examples of this mineral that have come from Brazil and California, and bases upon them somewhat extravagant symbolism; thus as regards the "peace stones"—the well-known tourmaline crystals, red and green at opposite ends with a colourless band in the middle—he writes: "We can see symbolised in them the great and consoling fact that, however marked may be the differences between any two peoples, they need not be cause for enmity, but may instead become true and enduring sources of peace and bonds of union." The electric properties of amber were, of course, a much earlier discovery, dating back to 600 B.C. That the wearing of a necklace of this substance kept off attacks of erysipelas in a person subject to them was maintained by the late Rev. C. W. King, the well-known writer on precious stones; the author quotes his actual words: "Its efficacy in defence of the throat against chills is evidently due to its extreme warmth when in contact with the skin and the circle of electricity so maintained."

In the chapter on meteorites the author draws for his description of the earlier falls largely upon Chladni, who was the first writer to make a systematic study of the numerous traditions of such phenomena, and to suggest a doubt in the minds of the scientific world whether they should be dismissed as idle fables. The more famous of the historical stones include the Phrygian stone, which was conveyed to Rome in 204 B.C., the Diana of the Ephesians "which fell from Jupiter," the Kaaba stone at Mecca, and the stone which fell at Ensisheim in Alsace on November 16, 1492. We note that Dr. Kunz speaks of the collection of meteorites at Vienna as the finest in the world, which is possibly true, but we may remark that the one in the Natural History Museum, London, is practically equal to it, and contains the large Cranbourne stone, weighing about 3½e tons. Descriptions and illustrations are given of the three enormous masses discovered by Admiral, then Lieut., Peary in 1894 near Melville Bay, West Greenland, and a few years subsequently removed by him to the American Museum of Natural History, New York, weighing respectively 36½ tons, 3 tons, and 1100 lb.; they have been named the Ahnighito, the Woman, and the Dog.

It may strike many readers as strange to read that even as late as the middle of the eighteenth century powdered hard stones were still in use for medicinal purposes; thus in a druggist's price-list dated 1757 a pound of emerald is quoted at eight groschen (5*l.*), of sapphire at double, and of ruby at treble that amount. The author gives lengthy details of the supposed virtues of the various gemstones, the species being arranged in alphabetical order, aanddevotes a couple of chapters to the

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curative properties of fabulous stones, and of the mysterious bezoars, which were thought to have originated in the eyes of deer, in the liver of various animals, or in similar strange ways. The use of precious stones in religious ceremony goes back to a very early date, and still prevails. The instance of the High Priest's breastplate of the ancient Jews is well known, and identification of the stones composing it has given rise to much interesting discussion. A long chapter is devoted to the description of amulets in ancient and modern times, and in the concluding chapter Dr. Kunz has collected many strange stories about precious stones. As an unusually brilliant imaginative effort we may select the old Burmese legend of the origin of the famous ruby mines: "In the first century of our era three eggs were laid by a female *naga,* or serpent; out of the first was born Pynsacoti, a king of Pagan; out of the third came an Emperor of China; and out of the third were emitted the rubies of the Ruby Mines."

The book is superbly illustrated and well printed, and contains an adequate index.

A BIOGRAPHY OF EDISON.

Thomas Alva Edison. By F. Rolt-Wheeler. Pp. ix+201. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1916.) Price 2*s.* net.

IN this life of Thomas Alva Edison, the author has given a very interesting description of the childhood, youth, and manhood of America's—one might almost say, the world's—greatest living inventor. We learn that, as a boy, Edison proved unsatisfactory under school routine, but was a great success under his mother's private tuition. He incessantly asked questions on and about everything, and insisted on an answer or wanted to know the reason "why." He also showed, from the earliest records, that he was a keen thinker, worker, and planner on all work which interested him, but under "routine" of any kind he was a complete failure.

The account of Edison as a newspaper boy on the Grand Trunk Railroad, and his original methods of disposing of his papers, as well as the description given of his services as a telegraph operator, illustrate the extraordinary ingenuity of the youth. He seems to have an uncanny foresight or "guessing power," as he calls it. He is no mathematician, and declared "he could guess a good deal closer than they could figure." In later years, as he developed his inventions one by one, he collected a number of valuable and enthusiastic assistants. He inherited from his father an exceptional power of gaining the confidence of people in his work and their financial support.

Edison's first important invention was the vote-recorder, which he placed before Congress men, who examined and acknowledged that it was a great success, but thought it was not required. This was a severe shock to the inventor, who at the time was hard up for money and hoped to make something out of it. But it taught him a lesson; "for there and then he made up his mind never to waste time in inventing things which were not wanted." Later he became manager of the Law Gold Recording Company, and invented many improvements on their instruments. At this time he married, but he denies the story that "he forgot his wife an hour after his wedding." He later became connected with the Western Union Telegraph Company, which gave him every help in completing his inventions. Among these are the duplex and quadruplex telegraphy, also the telephone carbon transmitter, and numerous other inventions well known to all.

On one occasion Edison was asked, "What is a genius?" and his answer is well worth repeating. "A genius is about 2 per cent. inspiration and 98 per cent. perspiration." His part in the construction of the carbon filament lamp (which was not entirely his work, for the late Sir Joseph Swan had much to do with it) is well known, as also in the production of the phonograph, which may be considered the most wonderful of all his inventions, and will always be associated with his name. Of his recent inventions, the storage battery is of enormous importance, especially to England at the present time. It is impossible to give more than a rough impression of his wonderful energy and enthusiasm and his determination to master all problems. America and the world are richer and wiser for his genius; and though he is now sixty-seven years of age, we hope that he will not only reach, but also pass, in activity, the great ages of his father and grandfather.

S. G. Brown.

THE DESIGN OF DIESEL ENGINES FOR MARINE PURPOSES.

(1) *Land and Marine Diesel Engines.* By G. Supino. Translated by Eng. Lieut.-Commander A. G. Bremner and J. Richardson. Pp. xv+309. (London: C. Griffin and Co., Ltd., 1915.) Price 12*s.* 6*d.* net.

(2) *Diesel Engines for Land and Marine Work.* By A. P. Chalkley. Fourth edition, revised and enlarged. Pp. xvii+368. (London: Constable and Co., Ltd., 1915.) Price 8*s.* 6*d.* net.

JUDGED from the titles given above, it might be supposed that these two recently published treatises on the Diesel engine covered the same ground, but a careful perusal will show that the ideas of the authors are by no means identical, and as a result it may be predicted that although both volumes will appeal to all engineers and others who have to do with internal combustion motors and motive power for the propulsion of ships, the first of the above two books is one that will find its way into the reference department of every drawing office where Diesel engines for marine purposes are being designed, whilst the second book, by means of its description of the gradual development of the Diesel engine from the early experimental engines of Dr. Rudolph Diesel down to the modern practice of to-day, will appeal

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